

Alcatel-Lucent - FCC Strategies to Implement Nationwide Roaming and Interoperability



November 8, 2010

Nationwide Roaming

- To support nationwide roaming we recommend using PLMN ids to govern the roaming, including settling of roaming charges
 - Consistent with commercial network strategy
- We recommend use of PLMN id at state/regional level, with possibly a separate PLMN id for a few major metropolitan areas
 - Statewide/regional management of LTE core will provide better operational scale for smaller PS entities, and facilitate roaming agreements
 - Each UE will be assigned a specific Home PLMN id (H-PLMN)
- In addition to H-PLMN id, ALU proposes to use an umbrella Public Safety PLMN id that is used nationwide to create a virtual nationwide network
 - There may or may not be any subscribers that have the nationwide PLMN id as their H-PLMN
 - UE will first look for H-PLMN, then for nationwide PLMN, and finally for commercial PLMNs with which jurisdiction has roaming agreement

Geographic Overlap

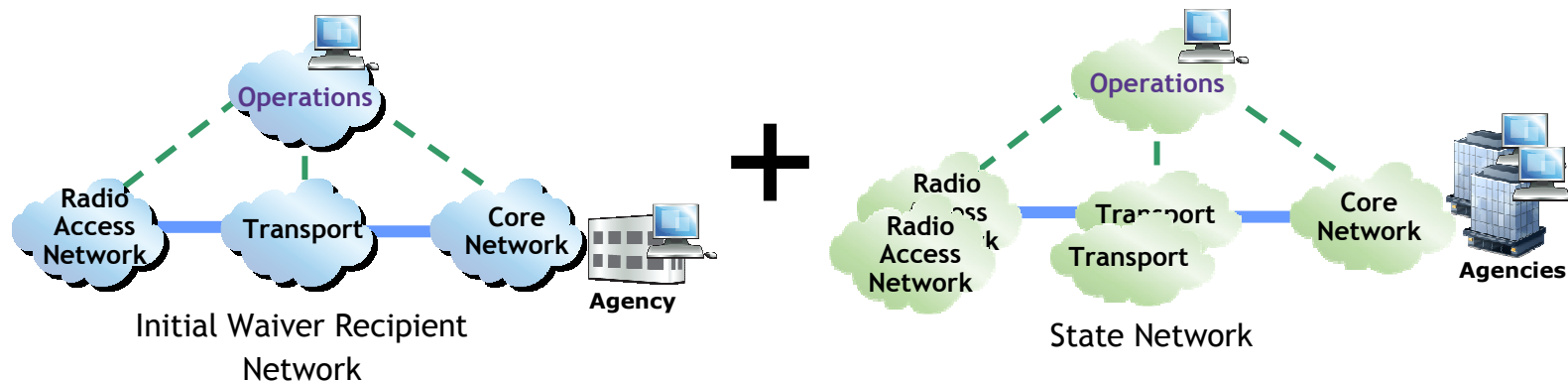
- As observed by FCC (DA-10-1748A1) several recent waiver submissions either overlap geographically with each other, or with previously granted waivers

- Alcatel-Lucent evaluated four scenarios:
 1. Initial waiver recipient maintains own core long-term
 2. Initial waiver recipient's core evolves to state core
 3. Initial waiver recipient partners with 3rd party for core
 4. Initial waiver recipient moves from own core to state core

- Next slides discuss these in more detail

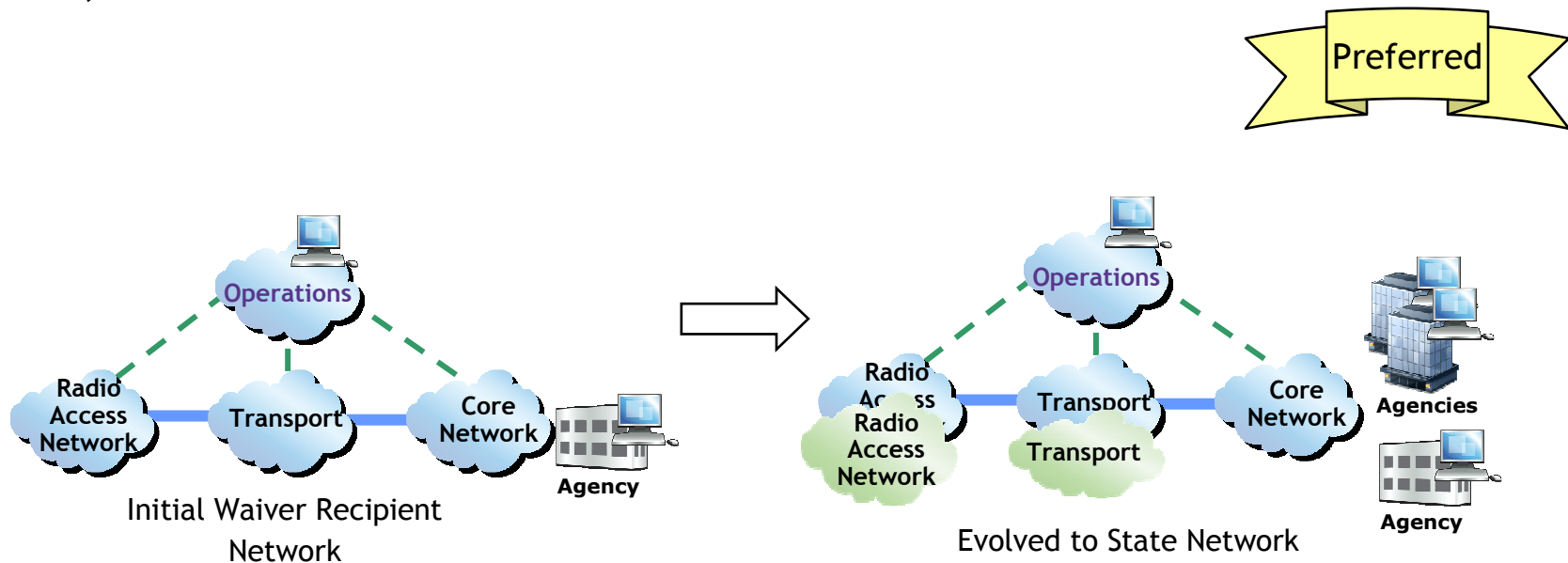
Initial Waiver Recipient Maintains Own Core Long-Term

- Requires initial waiver recipient to reach agreement with the State to maintain its own core network and PLMN id in the long-term
 - Networks are complementary
 - Example: New York City and State of New York
- Should be exception case to minimize total number of networks



Initial Waiver Recipient's Core Evolves to State Core

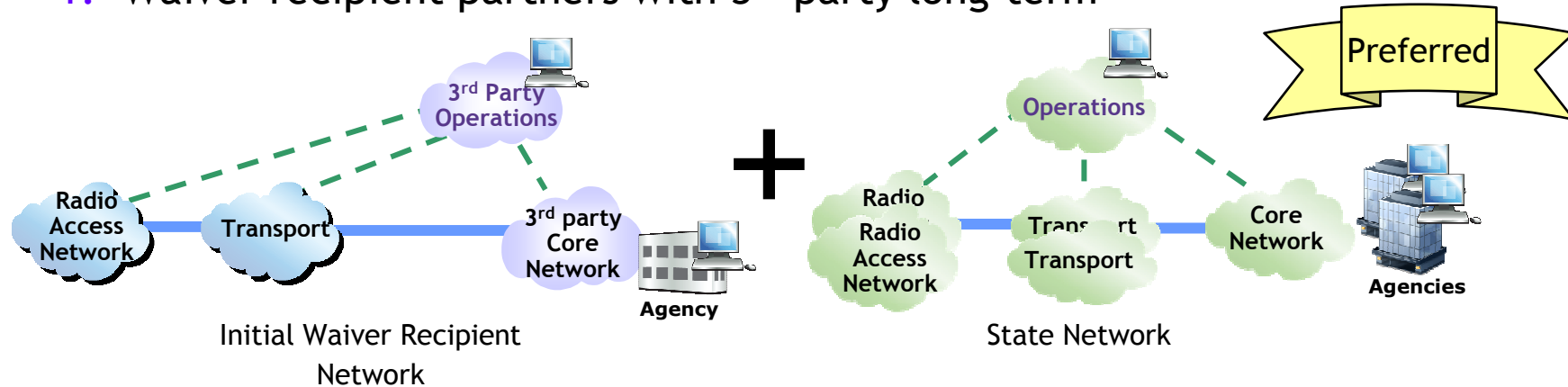
- The initial waiver recipient can reach agreement with the State that their initial core deployment will evolve to become the statewide core, with the initial PLMN id



Initial Waiver Recipient Partners With 3rd Party For Core

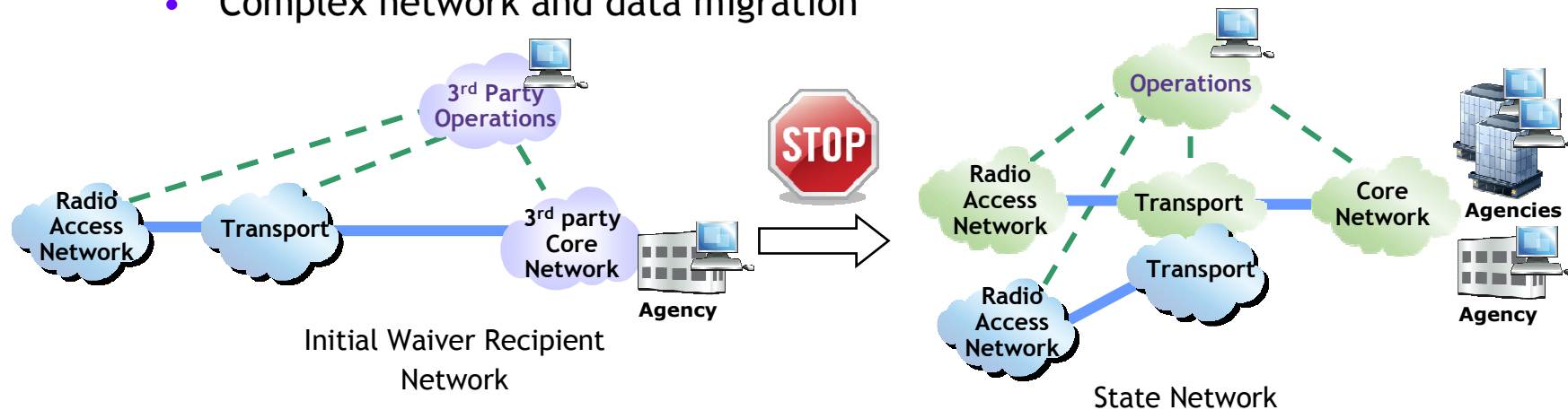
- Two evolution strategies:

1. Waiver recipient partners with 3rd party long-term



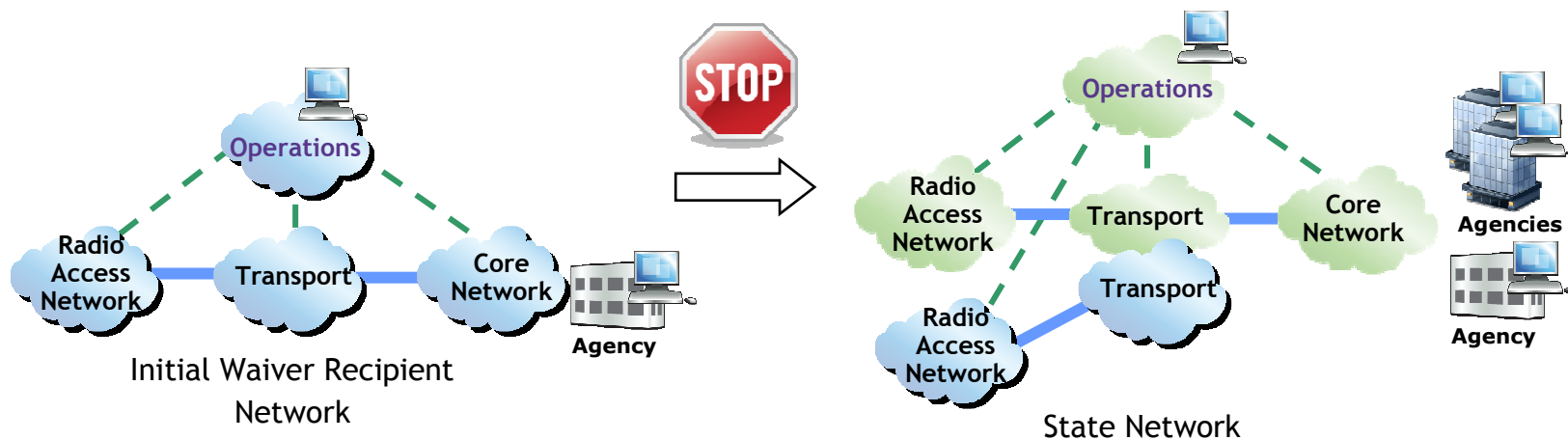
2. Waiver recipient evolves from hosted core to state core

- Complex network and data migration



Initial Waiver Moves From Own Core To State Core

- The initial waiver recipient can move from their initial core to the statewide core
 - Can reuse most core elements from initial waiver recipient but may require significant inter-vendor testing



Key Takeaways

- Alcatel-Lucent continues to support assigning PLMN ids at the state level
- We continue to recommend the use of an umbrella PS PLMN id to ease roaming across networks
- Evolve initial waiver recipient's core network to become statewide LTE core network wherever possible
- Initial waiver recipients that use a 3rd party LTE core should continue to use this core long-term
- FCC should consider allocating a very small number of PLMNs to 3rd party hosted core operators for public safety in order to facilitate early build-outs by small waiver recipients that may have funds available to them